

CUSTOMER NO.: 24498
Serial No.: 10/043,700
FINAL Office Action dated: October 12, 2005
Response dated: November 21, 2005

PATENT
PU010148

REMARKS

The Office Action mailed October 12, 2005 has been reviewed and carefully considered. No new matter has been added.

Claims 1, 8-11, 14, 15, and 17-20 have been amended. Claims 10 and 17 have been cancelled without prejudice. Claims 1-9, 11-16, and 18-22 are pending.

Claims 15 and 19 stand rejected under 35 U.S.C. §112, first paragraph. While the Examiner's position regarding the limitation "resonator-free, non-resonator-actuated" is respectfully believed to be incorrect, the preceding limitation has been amended out of Claims 1, 8-10, 14, 15, 19, and 20 to expedite prosecution of the instant case. Accordingly, all of the pending claims are believed to now satisfy 35 U.S.C. §112, first paragraph. Reconsideration of the rejection is respectfully requested.

From the previous office action mailed May 24, 2005, Claims 1, 7, 10, 11, 14, 17, and 18 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,308,051 to Atokawa (hereinafter "Atokawa '051"). Moreover, Claims 1, 2, 8, 10, 14, 16, 17, and 20 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,414,566 to Atokawa (hereinafter "Atokawa '566"). Claims 2, 3, 5, 6, and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,804,262 to Vogel (hereinafter "Vogel") in view of Atokawa. Claims 2 and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Vogel in view of Atokawa '566. Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Vogel in view of Atokawa '566 and in further view of U.S. Patent Publication No. 2002/0159511 to Wilson (hereinafter "Wilson"). Claims 4 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Vogel in view of Atokawa, and in further view of U.S. Patent No. 6,690,655 to Miner et al. (hereinafter "Miner").

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest "a digitally operable switch, connected in signal communication with the low-pass filter, responsive to signals from a microprocessor; and a notch filter selectively coupled to the low-pass filter by the digitally operable switch in response to indicium of a desired spectral region", as now recited in amended Claims 1 and 14.

Moreover, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest "receiving a control signal from a microprocessor in response to desired communication mode; controlling a digitally operable switch to selectively couple said notch filter to the low-pass filter for filtering the received upstream

CUSTOMER NO.: 24498**Serial No.: 10/043,700****FINAL Office Action dated: October 12, 2005****Response dated: November 21, 2005****PATENT****PU010148**

signals in response to the received control signal from the microprocessor", as now recited in amended Claim 20.

Support for the preceding amendments may be found at least at page 9, lines 9-20 and page 11, lines 4-13 of the Applicants' specification.

In contrast, Atokawa '051 discloses a frequency variable trap circuit 28 designated by the Examiner as a low-pass circuit (Office Action, p. 4), and a resonant-dependent notch filter designated by the Examiner to include elements D3, L4, R2, and C13 of FIG. 1 of Atokawa '051. That is, the notch filter operates dependent upon a state of at least resonator D4. For example, Atokawa '051 discloses that "[t]he frequency variable trap circuit 28 is provided with the resonator 4 which is electrically connected through the capacitor C7 for resonance at the intermediate connection point of the surface acoustic wave filter circuit 30 and the second phase shifter 29. The series circuit of the variable bandwidth capacitor C8 and the PIN diode D3 is electrically connected in parallel to the resonator 4 in a condition where a cathode of the PIN diode D3 is grounded at the intermediate connection point of the resonator 4 to the capacitor C7 for resonance" (Atokawa '051, col. 5, lines 48-57).

Moreover, in contrast to the above-recited limitations of Claims 1, 14, and 20, Atokawa '566 discloses a bandpass elimination filter formed from at least resonators R1 and R2. In relation, the Examiner has designated that Atokawa '056 discloses a low pass filter between the ANT and TX terminals shown in FIG. 2 and a notch filter that includes elements C20, C10, LT2, LT1, CT, and RT also shown in FIG. 2 (Office Action, p. 5). The portion of the circuit shown in FIG. 2 of Atokawa '566 that the Examiner has deemed a notch filter is dependent upon a state of at least resonators R1 and R2. For example, column 4, lines 36-37 and 51-61, and column 5, lines 25-36 of Atokawa '566 disclose

[R]esonant frequencies of the resonators R1 and R2 are individually used as attenuation poles. ... In the transmitting filter, a serial circuit is formed of a diode D1 and a capacitor 10 is formed between the end and the grounded point of the resonator R1. A serial circuit formed of a diode D2 and a capacitor 20 is formed between the end and the grounded point of the resonator R2. An RF-blocking circuit formed of an inductor LT1, a resistor RT, and a capacitor CT is provided between the control-signal input terminal CONT1 and the diode D1. An RF-blocking circuit formed of an inductor LT2, the resistor RT, and the

CUSTOMER NO.: 24498**Serial No.: 10/043,700****FINAL Office Action dated: October 12, 2005****Response dated: November 21, 2005****PATENT****PU010148**

capacitor CT is provided between the control-signal input terminal CONT1 and the diode D2. ... [I]n response to a predetermined positive voltage applied to the control-signal input terminal CONT1, the diodes D1 and D2 become conductive, and the capacitors 10 and 20 are substantially parallel-connected to the resonators R1 and R2, respectively. Thereby, individual resonant frequencies of the resonators R1 and R2 decrease. When the application voltage to the control-signal input terminal CONT1 is reduced to 0V, the diodes D1 and D2 are blocked. Therefore, the capacitors 10 and 20 are disconnected from the resonators R1 and R2, respectively, thereby increasing the resonant frequencies of the resonators R1 and R2.

Atokawa '061 and Atokawa '566 are both silent with respect to the use of a digitally operable switch and a microprocessor with respect to the notch filter and low-pass filter as recited in Claims 1, 14, and 20. Accordingly, none of Atokawa '061 and Atokawa '566, either taken singly or in combination, teach or suggest the above-recited limitation of Claims 1, 14, and 20.

A reference cited against a claim under 35 U.S.C. §102 must disclose each and every limitation of the rejected claim. Accordingly, independent Claims 1, 14, and 20 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above.

Moreover, none of Vogel, Wilson, and Miner cure the deficiencies of Atokawa '061 and/or Atokawa '566, either taken singly or in any combination. For example, as admitted by the Examiner, "Vogel does not disclose that the diplexer is having a high-pass filter, a low-pass filter, and a notch filter selectively coupled to the low-pass filter in response to indicium of a desired spectral region" (previous Office Action, dated May 24, 2005, pp. 7-8). Accordingly, none of the cited references, either taken singly or in any combination, teach or suggest the above-recited limitations of Claims 1, 14, and 20.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). Moreover, "[i]f an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

CUSTOMER NO.: 24498

Serial No.: 10/043,700

FINAL Office Action dated: October 12, 2005

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Claims 2-13 and 21 depend from Claim 1 or a claim which itself is dependent from Claim 1 and, thus, includes all the elements of Claim 1. Accordingly, Claims 2-13 and 21 are patentably distinct and non-obvious over the cited reference for at least the reasons set forth above with respect to Claim 1.

Claims 15-19 and 22 depend from Claim 14 or a claim which itself is dependent from Claim 14 and, thus, includes all the elements of Claim 14. Accordingly, Claims 15-19 and 22 are patentably distinct and non-obvious over the cited reference for at least the reasons set forth above with respect to Claim 14.

Moreover, said dependent claims include patentable subject matter in and of themselves and are, thus, patentably distinct and non-obvious over the cited references in their own right. For example, none of the cited references teach or suggest the following limitations of Claim 15:

a first plurality of inductors connected in series between said first and third signal ports, each of said first plurality of inductors being coupled to ground via a respective capacitor forming thereby a plurality of single pole filter elements, a portion of said first plurality of inductors being bypassed by respective capacitors, the portion consisting of any of the first plurality of inductors which are connected to said resonator-free, non-resonator-actuated notch filter via the respective capacitor; and

said notch filter comprises:

a second plurality of inductors, where each inductor is respectively coupled between a portion of the capacitors of the single pole filter elements of the low-pass filter and ground.

In fact, Claim 15 is not even mentioned in the Office Action with respect to any cited art.

Moreover, it is respectfully asserted that none of the cited references teach or suggest "wherein said notch filter comprises a plurality of inductors and a plurality of pin diodes, each of the plurality of inductors having a first end and a second end, each of the plurality of inductors connected in parallel with a respective one of the plurality of pin diodes at the first end and a common control node at the second end", as recited in each of Claims 21 and 22.

Accordingly, reconsideration of the rejections is respectfully requested.

CUSTOMER NO.: 24498

Serial No.: 10/043,700

FINAL Office Action dated: October 12, 2005

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In view of the foregoing, Applicants respectfully request that the rejection of the claims set forth in the Office Action of October 12, 2005 be withdrawn, that pending claims 1-9, 11-16, and 18-22 be allowed, and that the case proceed to early issuance of Letters Patent in due course.

The fee of \$790 required by 37 C.F.R. §1.17(e) for the filing of a Request for Continued Examination (RCE) under 37 C.F.R. §1.114 is authorized. It is believed that no further additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicants' Deposit Account No.07-0832.

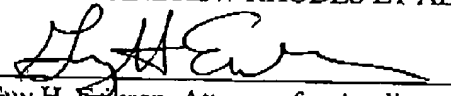
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